

WHAT IS CLAIMED IS:

1. A flexible tube of an endoscope comprising:

a mesh tube, which is provided to an inserting portion of the endoscope, formed of at least two metal wires in the shape of a mesh, wound with an angle so that the metal wires are not disposed in the direction orthogonal to or parallel to the longitudinal direction of the inserting portion; and

a contracting member for generating contraction force in the longitudinal direction of the inserting portion generally with the same magnitude as the extension force in the longitudinal direction of the inserting portion, generated due to the pressure difference between the inside and the outside of the endoscope.

2. A flexible tube of an endoscope according to Claim 1, wherein the contracting member covers the outer circumference of the mesh tube, as well as covering a covering tube which generates the contraction force at the time of the autoclave sterilization.

3. A flexible tube of an endoscope according to Claim 2, wherein the covering tube is formed of a polymeric material.

4. A flexible tube of an endoscope according to Claim 3, wherein a single material or a blend of any of styrene resin, ester resin, olefin resin, and amide resin, is employed for the polymeric material.

5. An endoscope comprising a flexible tube comprising:
a spiral tube formed of metal strips wound in the shape of a spiral;

a mesh tube formed of at least two metal wires in the shape of a mesh, wound with an angle so that the metal wires are not disposed in the direction orthogonal to or parallel to the longitudinal direction, for covering the outer circumference of the spiral tube; and

a covering tube for covering the outer circumference of the mesh tube;

wherein the contraction force is generated generally with the same magnitude as the extension force of the flexible tube, generated due to the pressure difference in the event that the pressure in the inside of the endoscope becomes smaller than the pressure in the outside thereof, thereby suppressing the change in the length of the flexible tube.

6. An endoscope according to Claim 5, further comprising a pressure regulating valve for maintaining the

pressure in the inside of the endoscope within a predetermined value by releasing the pressure regulating valve in the event that the pressure in the inside of the endoscope exceeds the predetermined value as compared with the pressure in the outside thereof,

wherein the predetermined value for the pressure regulating value is set so that the contraction force of the flexible tube is generated generally with the same magnitude as the extension force of the flexible tube generated due to the pressure difference in the event that the pressure in the inside of the endoscope becomes less than the pressure in the outside thereof.

7. An endoscope according to Claim 5, wherein the covering tube is formed of a polymeric material.

8. An endoscope according to Claim 7, wherein a single material or a blend of any of styrene resin, ester resin, olefin resin, and amide resin, is employed for the polymeric material.

9. An endoscope comprising:

a flexible tube including

a mesh tube formed of at least two metal wires in the shape of a mesh, wound with an angle so that the metal

wires are not disposed in the direction orthogonal to or parallel to the longitudinal direction, and

a covering tube for covering the outer circumference of the mesh tube;

a pressure regulating valve for maintaining the pressure in the inside of the endoscope within a predetermined value by releasing the pressure regulating valve in the event that the pressure in the inside of the endoscope exceeds the predetermined value as compared with the pressure in the outside thereof; and

contraction force generating means for generating the contraction force of the flexible tube generally with the same magnitude as the extension force of the flexible tube generated due to the pressure difference in the event that the pressure in the inside of the endoscope becomes smaller than the pressure in the outside thereof.

10. An endoscope according to Claim 9, wherein the contraction force generating means is formed of the covering tube which generates the contraction force at the time of the autoclave sterilization.

11. An endoscope according to Claim 9, wherein the extension force of the flexible tube can be adjusted by the setting for the pressure regulating valve;

and wherein the predetermined value serving as a threshold value for operating the pressure regulating valve is set such that the extension force of the flexible tube is generated generally with the same magnitude as the contraction force of the flexible tube.

12. An endoscope according to Claim 9, wherein the covering tube is formed of a polymeric material.

13. An endoscope according to Claim 12, wherein a single material or a blend of any of styrene resin, ester resin, olefin resin, and amide resin, is employed for the polymeric material.